

*Cam. d. 665. 11*

THE  
DESIGNE

For the perfect DRAINING of the  
Great LEVEL of the FENS,  
(called Bedford Level)

Lying in Norfolk, Suffolk, Cambridgeshire, Hunting-  
tonshire, Northamptonshire, Lincoln-  
shire, and the Isle of Ely.

As it was delivered to the Honourable Corporation for the Drain-  
ing of the said Great LEVEL, the 4<sup>th</sup>. of June, 1664.

AS ALSO,

Several *Objections* answered since the Delivery  
of the said *Designe* : with *Objections* to  
the *Designe* now in agitation.

And as for the New Works intended in this  
*Designe*, appears in the annexed Map ; and the  
Charge of the whole Calculated,

BY

Collonel William Dodson.



London, Printed by R. Wood, and are to be sold by Henry Twisford  
in Vine-Court in the middle Temple, and by Rich. Marriot over  
against the middle Temple-gate in Fleet-street, 1665.

DESIGNS

(called Bedouin)

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the D. & W. now in operation.

Change of character of the

Colonel William D. Smith

in 1960-61, and in 1961-62, the total catch was 1,000 tons.

To the Right Honourable,  
**WILLIAM**  
Earle of Bedford,

Governour of the Corporation for the  
Draining of the Great Level of the  
Fens, called Bedford Level.

Right Honourable,

**I** Have no ambition to appear in Print,  
but where His Majesties Service, the  
Good of the Honourable Corporation, and  
the Improvement of the whole Level, and  
Counties adjacent, are effectually the Que-  
stion. I shall without much difficulty  
subject this following Discourse to the  
view of the Publique; and I take a Con-  
fidence to beg of Your Lordship, that it

A 3 may

## The Epistle Dedicatory.

may come abroad under Your Patronage.

I hope it will not be needful for me to proclaim my Integrity in this Affair, having had the Honour to spend a great deal of

Time and Money, in promoting it: and being at last dismissed for Causes, which in

modesty I shall conceal. As to my Abilities

of making good what I undertake, I shall

readily submit my Reasons and Proposals

to the strictest Examination; and if I fail

in the Main, I shall patiently abide the

Reproach: But if my Design shall be

found in the end practicable, and not onely

that, but incomparably less Expensive, than

any way hitherto proposed or propounded;

I persuade my self, that Your Lordship

will not repent the doing me in this

new Day, or that I shall hereafter do you

any service.

Right Honourable,

Your Honors most humble

and Obedient Servant,

William Dodson.





into Dikes and Banks; others to let the  
 sea to flow. *To the Reader.* how or  
 its Sill, for the repairing of the Banks;



**H**is is the first time I have  
 ventured my self in Print;  
 and I might very truly  
 take up the common Apo-  
 logy of doing it, to grati-  
 fie the earnest desires, and instance of  
 certain Honourable, y<sup>e</sup> **W**orthy  
 Friends; (for I do not publish in my own  
 single Judgement) but I shall rather  
 declare my self to be governed in this  
 action, by the Love and Duty which I  
 bear and owe to my Countrey; then  
 by any private and particular respects:  
 And whether my Conception be vain  
 or profitable, let the Reader judge.

The Point in Question, is the per-  
 fect Draining of the Great Level of  
 the

*To the Reader.*

the Fennes, called *Bedford Level*; some are for cutting the whole Level into Dikes and Banks; others, to let the Sea to flow into the Level, to lodge its Silt, for the repairing of the Banks; besides several other wayes, which upon Experience, and after infinite Charge, have been found fruitless at last. That which I propound is, briefly to effect the thing; and to make appear in this Discourse, to any unbyassed person, the facility, and the certainty of doing of it; and finally, of doing it upon such easie Terms, that the whole Charge shall not amount unto much more, then hath formerly been spent in a Year or two Reparations: And for satisfaction herein, I shall referre the Reader to the Account and Calculation which follows.

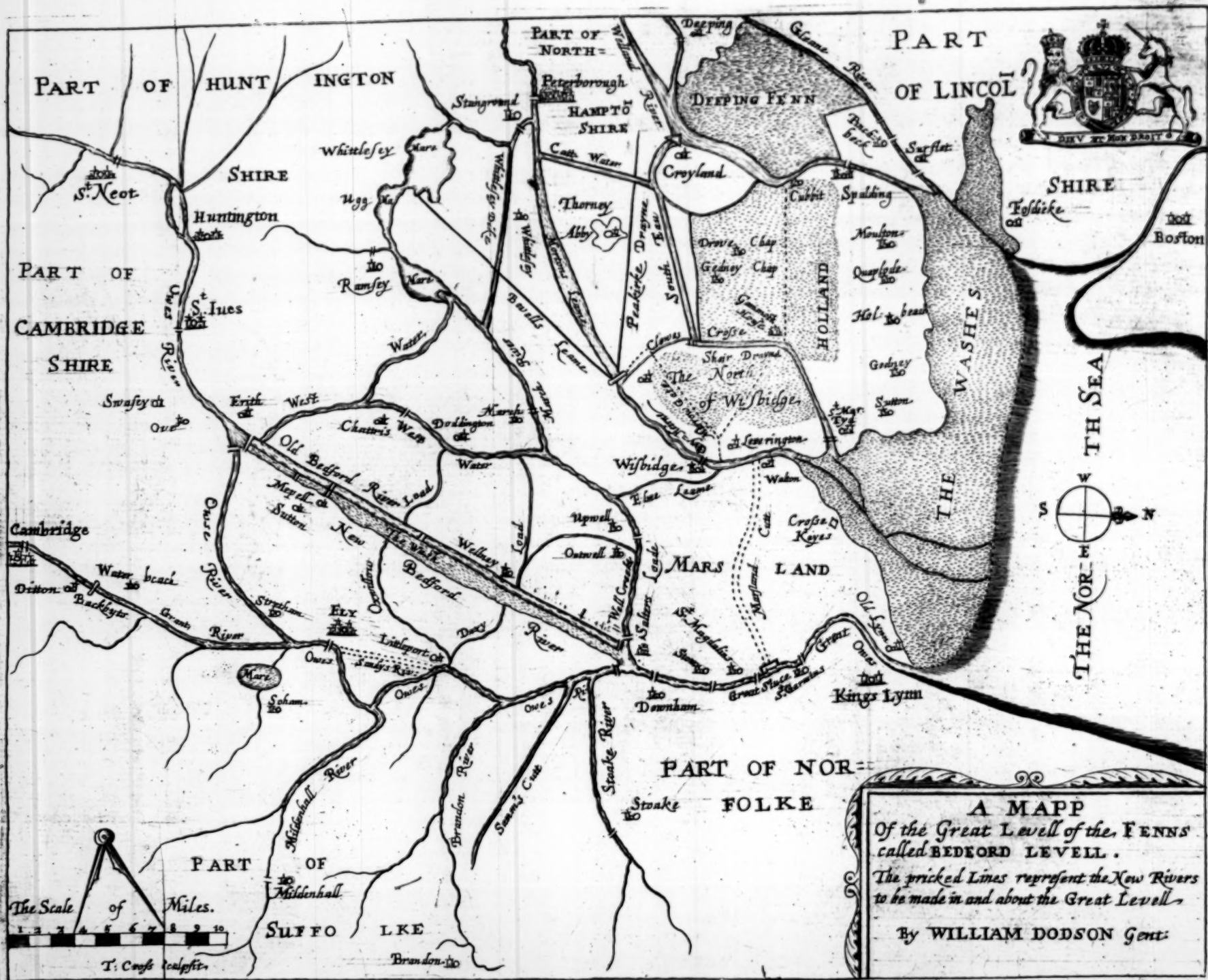
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A MAP

OF THE

OF THE





# The Design,

For the perfect Draining of the Great Level of  
the Fens, called *Bedford Level*.

By Collonel *William Dodson*.



**I**T is not to be expected this whole following Discourse to be all new, since the necessity of making it to appear rational, compells me to a recital of many things as well known unto others as my self; and so to usher your judgements to approve of it as reasonable, (which the whole Level as an intire argument doth perswade) I shall extract no other cure for her present Distemper, then what Nature her self hath appointed for a Remedy.

And, in the first place to acquaint you with the Circumference and Quantity of Ground I am to treat of; and likewise to acquaint you with the Soyl, or Earth we are to work upon, and then the severall Rivers and Rivilets which fall into, and run through this great Level, and how the unruly Tides do beat back our Freshes into our bosoms, when they are boasting to the embraces of their Mother the Sea.

I shall not divide this great Level into piece-meals, but as my industry, and thirty years Experience and more hath taught me, I shall give you the Descent of each part of it, as it is naturally inclining to the Sea, as also those Rivers which Nature hath appointed to conduct the supernumerary Waters to it; and then I shall lay down the Rules, and way for the perfect Draining of this great

B

Level,



Level, and at a small charge, and to take off all hazards of being drowned for the future, and also the vast expences of yearly Repairs, whereby will easily appear the great advantage which will accrue to his Sacred Majesty, the Honourable Corporation, and to the whole Countrey, resolving as much brevity as the weightiness of so important an affair may permit.

The Circumference of the Level.

The Circumference beginning at Saltors Load in Norfolk, and so by the hard Lands of Norfolk, Suffolk, Cambridgeshire, Huntingdonshire, Northamptonshire, and Lincolnshire to Croyland, and so to South Ea Bank, to their Drain to Tidgoat, from thence to Wisbidge, so to Well, and to Saltors Load again, which Circumference contains at the least 120. miles; within which lieth at the least 400000. Acres of good Land, if once perfectly drained.

The Nature of the Soyl or Earth.

The Soyl or Earth is generally a black or red Moor, the black Moor is naturally a rich Soyle, the red is not so strong; but both the red and black being laid dry, becomes a perfect black mould, and good Soyle: witness Thorney Fenns, and all others which have lien dry for some years past. The Soyl is good and profitable, and lyes in most part of the Pens a foot deep, and in some places more, though Nature and Art have taken their way through the worst of our Fens, I mean the two Rivers of Morton's Leame, and Bedford River, (the last made by the Right Honourable Francis Earle of Bedford, and the first by that Reverend and Learned Prelate Bishop Morton, were the two most famous Works as ever were made in this great Level, as useful to the draining of it; but the banks being made of this light Moor, (which could not possibly be avoided) which now being rotten with long lying dry, hath lost its tuffness, and is become a light black mould, and yields to those waters lying on the banks, and makes the banks meer water, by which means they have lost their former strength to withstand a reasonable Flood.

Morton's Leame and Bedford River.

The light Moor not good for banking.

The River Welland excepted in this Design.

To and through this great Level runneth certain Rivers and Rivulets, I exclude the River Welland, as not to meddle with it in this Design; and those which I call Rivers, (which we have to deal withall) are new Nean, *alias*, Morton's Leame, Bedford River, and great Owse: The River Nean is very considerable, it runs out of Northamptonshire, and brings many Rivers and Rivulets which fall into it; and with reason we may believe Northamptonshire to be the highest County in all England, there being no River which runs into it, but many which run out of it East, West, North, and South.

Bedford

Bedford River is equal with Nean, and brings with it all those Rivers and Brooks out of Bedfordshire and Buckinghamshire.

Bedford River.

Old Owse I call it a considerable River for those of Grant, Millnall, Brandon, and Stoke makes Owse (before it meet with Bedford River) at Saltors Load, a great, and considerable River.

Old Owse.

As for South Ea, Peakirk Drain, Bevils Leam, Whittlesey Dike, Swords Delft, Elm Leam, March River, Ox-willow Load, Sandy Dike, Downham Load, Dr. Williams Load, Reach Load, Ford-horn Load, and Samms Cut, with many other small Creeks, which are no way prejudicial to our Work, but much to our benefit, and ease, and will be much for our use.

South Ea, Whittlesey Dike, March River, Bevils leam &c. usefull in draining.

As for the several Descents in this Level, you shall finde them thus, from the height of Burrough Fens, and Thorney Fens, and from Bull Dike, and Catt water; the descent lies to the lowest part of Thorney Fens by Clows Crofs, and Murrow Plash.

The descent of Burrough and Thorney Fen, &c.

All those Fens and Grounds from Stanground, Whittlesey Mare, Ug Mare, and Ramsey Mare, Kings Delft, West Fen, all those Grounds or Fens of Ramsey, Pedley, Doddington, Chartris, and March; all those Grounds lye descending to the River of March, and the West Water.

The descent of Stanground, Whittlesey Ug Ramsey Mare &c.

All those Grounds and Fens which lye East of the West Water to the North Bank of Bedford River, have their Descent inclining to Well River, and Welney to the Po Dike.

The descent of the Grounds on the East of the West water to the North Bank of Bedford River.

All those Fens and Grounds lying South-East of Bedford River, have still their descent Eastward to Littleport, and to Priest-houses, and so into great Owse.

The descent of the grounds South East of Bedford River.

Yet though it be true (as it is) that all those Lands and Fens from Morton's Leam to the River Owse, have their Descent still Eastward, yet is as true, it is not above half a foot in a mile, and that is no considerable Draught to convey our downfall to our two Rivers of great Owse and Morton's Leam, which upon necessity must drain the Countrey; but if Morton's Leam and great Owse cannot be brought to run so low, as to gain a Draught into them, we cannot be perfectly drained: but this without all doubt may be effected.

Those Fens and Grounds which lye on the East side of great Owse in Norfolk and Suffolk, with Soham Fens, Swaffam Fens, Ditton, Barwell Fens, Ilesam, Milnall, Whelps Moor, and the Fens of Felkwell have their Descent West to the River Owse, but is little or nothing. Yet there is no doubt but to gain these Rivers

The descent of the Fens on the East side of great Owse.



two foot fall into the River Owse, and that Soham Meer shall never come within four foot of its former height in ordinary Floods.

For besides the Sock, and down-fall into this Level, we have three considerable Rivers which runs through it into the Sea. Morton's Leame, whose way is through Wisbidge, and so into the Washes, and Bedford River, and great Owse, which joyn together at Saltors Load, and run intire to Lynne, and fall into the Sea below the Washes. There hath been great industry, and much money expended in making of great and vaste Banks to keep those Rivers within their Bounds, and to carry our Freshes to run at that height as to ride the Tydes, and this hath been the Design of all the Undertakers since Lyn Law was first made: but if ever they had found the Descent (which they hoped for) the Tyde (their greatest enemy) could not then have possibly prevailed to flow into the very Center of this great Level every twelve hours, though the late made new Rivers do run high by reason of the imbanking and the flux of the Tyde.

The Tide a great enemy.

Want of Freshes a great enemy.

The light fuzzy Moor to make Banks withal, another enemy.

Reasons why the Tyde is an enemy to Draining.

One other enemy (though not so dangerous) to this great Level, is, the want of Freshes in the Summer to water the Grounds and Cattle, and to scour the Out-falls. And the other enemy is the fuzzy light Moor to make Banks withal, which moorish Earth hath deceived all the worthy Undertakers from the beginning, and therefore is not to be trusted any more.

Neither is it without reason, that those three I last named are such obstacles to the perfecting of this great work of Draining this Level. For if we consider the Floods which fall down into this Great Level, intending for the Sea; which for want of descent cannot run quick, and the Tyde every twelve hours meets our Freshes, and beats them back; the Tyde by reason of his great ascent at Sea, flowes quick into the very bowels of our Fens, so far as above Welney upon Bedford River, which is no less then eight and twenty miles from the Sea: And likewise it flowes above Guy-heirne in Morton's Leame into the midst of our Fens; and it must be confessed the Tyde flowes into us three hours and an half, and we allow four hours for the same quantity of water to ebb back again, so that at the most we have but four hours and an half in twelve hours, to run out our Freshes which drown us.

Thus the Floods increase in our Rivers between the Banks, and riseth, and lieth on them at a great height, and as I have said, these

these moory Banks will deceive all that trust in them: It is confessed that the moor Earth is tuff so long as it lies wet, but is good no longer then till it is rotten, and that it will be if it lie dry four or five Summers, and then it sinks, and becomes a light black mould; and if it chance that a Flood lie upon it but three or four dayes, it soaks in the water and becomes sobbed, and is neither Earth nor water, and then it leaves you when you have most need of it, and drowns the Fens more, then if there were no Banks at all.

Reasons against  
the Banking with  
light Moor.

The third enemy is the want of Freshes in the Summer, which doth not onely make the Countrey, and the Cattle miserable, but the Out-falls will be destroyed for want of water to scour them in dry Summers: Nor would I have the late dripping Summers be an encouragement, that the Out-falls are so good that there is no cause to fear them, (may they alwayes continue good I wish) but if the Out-falls once fail, it will be a greater inconvenience then the breaking of a Bank onely, my fear hereof is just enough; In a dry Summer you have none, or very few Freshes, either by the River Morton's Leame, or great Owfe, and ye are sure to be visited with the Tyde every twelve hours; and then I may tell you, if you have Northernly windes, you will have such foul waters from the Sea, that quickly will lodge up your Out-fall at Wisbidge, and Lyn, by reason your Rivers in those places are wider then they ought to be, (which may be helped by this my Design) so that the Flux and Re-flux of the Sea, doth not grinde but feed.

Reasons why the  
want of Freshes is  
a great enemy to  
Draining.

The River Owfe which hath its Out-fall at Lynne, is for some miles at Sea below that Town much obstructed by several shelves of sands, which are moveable as the winde and sea forces them; and yet the winter Chennels are kept by the winter Floods; but in Summer our want of Freshes or Floods make us not able to maintain our winter Chennel, and so we lose it till our first Floods in November (or thereabouts) can gain their own Chennel again; in the mean time all our Banks and Works are in great danger, and the poor Countrey-man in hazzard of utter ruine, and the Navigation of Lynne very uncertain and dangerous; the same hazzards in all respects are in the River of Wisbidge through the Washes to the Sea.

The River Owfe  
much obstructed  
with shelves of  
Sand below Lyn.

And now to prevent these dangers, and to make our Fens and Level secure, without trusting to the hazzard of our

Out-falls without us, or the breaking, or the sinking of the Banks within us; the taking away all those great charges of maintaining and repairing all those Banks made to hold up our In-land Floods at such a vast height as to rid the Spring tides (as I have said before) I dare be bold to say, that twenty years hence for want of Earth at a reasonable distance, the Banks will cost more in one year than now they do in four; I wish the Charge of those Fen Lands may not exceed the Profit, as some of them have already done, and much good Land without the Level in likelihood to come into the same condition if not prevented.

When I was DIRECTOR, I would have cut through Murrow-gate to the Horseshoe at Wisbridge, which would have cost less than the widening of that River, and there to have fallen into Wisbridge River close to the Apron of that gallant Sluice then standing; and so far I had (as I did then believe) obtained the Adventurers to consent unto, and they at a general meeting at Wisbridge 1649. did make a personal view of the place, and found what I affirmed to be truth; and this River I would have compleated by reason of the great benefit it would have been to all the North-side of Wisbridge, and other parts adjacent, to drain them, and a certain Slaker in all Floods to ease Morton's Leam and all the Banks upon it upon all occasions.

The River Owfe  
and Morton's  
Leam made to  
run quick below  
Downham and  
Wisbridge.

Then take the River Owfe, and all the Branches which fall into it before it come to Downham-Bridge, and likewise cast your eye upon the River called Morton's Leam as it runs at the Horseshoe below Wisbridge, to meet there with my new River that is to be made through Murrow-gate; and this is the first part of my Design, to bring all our Floods and Freshes to run quick below Downham, and Wisbridge.

In the next place, to give more particular satisfaction, I question not but all rational men will grant, and allow, that if by this Design, those two considerable Rivers of great Owfe, and Morton's Leam, can be brought to run all the year, and every hour of the year, in two great Rivers at Downham-Bridge, and Wisbridge-Bridge, notwithstanding the Spring Tides or the Ebb Tides; they must needs confess that they then believe they shall be perfectly drained, yet they cannot believe this can be done, but that the Tide must be stopped; and it is true, and good reason for it; which as I said before, flowes into us every

The Tide stopped

twelve

twelve hours into the midst of our Fens, and flows no less then three hours and an half, or four, and then four hours to ebb back again, so shall we have not above four hours in twelve for our Freshes to run out of the Level.

But it is intended, and will be made good by this my Design, the Freshes shall run quick all the year, and every hour of the year, at Downham-Bridge, and Wisbidge, if they may have leave by a Sleuce below them some miles distant; and though I name this last, yet it is the first thing to be perfected, that is by a substantial large Sleuce made at German-bridge, or Magdelen in Norfolk, and near unto it one Soss to maintain Navigation, from Lynne to Cambridge, Wisbidge, and to all other places formerly used into the adjacent Contreys: And this being once substantially performed, the whole work of Draining is in a manner perfected.

The great Sleuce to be at German-Bridge, or near Magdelen in Norfolk.

And as for the River of Wisbidge, and the Slaker through Murrow-gate, I carry them jointly in a River through Marstrand, from the Horlethooe to the great Sleuce at German-Bridge, or near Magdelen, by sufficient Banks of good solid Earth, then have I sufficient water way for all those Freshes to the Sea, which will force good Navigation, and maintain the Channel Winter, and Summer, to the great benefit of all those Sea men which use that Port of Lynne, and all the Rivers in and out of the Level will be much bettered, and improved.

A new River to be cut through Marstrand.

As for the sleighting any Banks upon Bedford River, or Morton's Leam, or to make new ones, (except a small one at Guy-heirne) it is no part of my Design, but I do wish those Banks which are upon Bedford River and Morton's Leam, had not been placed at so great a distance one from another.

No Banks to be sleighed.  
A small new bank at Guy-heirne.

And as for the Sosses at Scanground, Erith, Well, and others, they are of singular good use, yet I do affirm, there will be a necessity of having a Soss, and Sleuce near Ditton, otherwise the Navigation to Cambridge is lost, by reason the waters will be so low both Winter and Summer in the River Ouse, that the Rivelets of Millhall, Brand, and Stoke, must be either held up or bottomed.

The Sosses at Scanground, Erith Well, &c. are useful.  
A Soss and Sleuce at Ditton.

The like it will be with Morton's Leam from Guy-heirne to Peterborough, otherwise it will not be alwayes navigable either to Winter or Summer, unless we keep the waters in the new River through Marstrand and in Wisbidge Town at a great height alwayes.

A Soss and Sleuce to be made at Guy-heirne.

The use of that  
Sluce, and of that  
at Murrow Plash.

North-side of  
Wisbidge drained  
with the Smee,  
and the great  
Common in  
Mariland.

A small Cut from  
Owfe to Little-  
port Chair.

The benefit of  
Navigation  
through Croy-  
land.

Great Benefit to  
Thorney Lord-  
ship.

Sheir-drain not  
to be sleighted.

always. This Sluce, and that at Murrow Plash, commands the River through Wisbidge, and that through Murrow-gate with your new River through Mariland, by the help of the great Sluce and Sofs at German, that if need should require, would lay the very soles dry, insomuch that at all times you drain the North-side of Wisbidge, and parts adjacent, the Smee, and the great Common in Mariland: neither will there be any need of raising the Bank from Guy-heirne to Bevis-hall, for the security of the North-side of Wisbidge, whereof many complaints have been made, for here that great River will run low in a great flood with great swiftness.

One other small work I would do, which is a Cut from the River Owfe near Ely, to the Chair at Little-port, which will be about three miles, and this I would make fifty foot wide without Banks; this is to help old Owfe to take off a sudden flood, which otherwise will hang long upon Water-beach, Swaffam Fens, the Phillips, Stretcham, and other Grounds adjacent, being the shelves, and stops in the River Owfe are taken away.

Croyland had always Navigation into Norfolk, Suffolk, and Cambridgeshire, and all other parts of this great Level, and from thence to Boston, Lynne, and unto the City of York, which is now obstructed. I mention this place, by reason I know it is very easie to make from this Town good Navigation to Stampford, to the great benefit of that Town, and Countrey, likewise to Boston, Lynne, and other parts; the Honourable Earle of Bedford is no small loser for want of this Navigation through this Town of Croyland into the River Welland, and his Tenants at great charges to cart their Corn and other commodities to the River Welland, and elsewhere, to the damage of the Earle, and his Tenants, I do verily believe Five hundred pounds *per annum*. But I shall say no more to this, but I know the want of Navigation makes many Towns poor, and the having of it makes many Towns and Countreys rich; and the making of this Navigation good is performed at a small and inconsiderable charge, and without any danger of drowning of Thorney Grounds (as some have alledged) but will prove beneficial to all that part of the Countrey in a dry Summer.

And as for Sheir-Drain I have no intentions of sleighting it, it is good to convey fresh waters into the Countrey, and of great use and benefit unto Holland.

It may now be conjectured what my Design is for the perfect Draining this great Level; and lest I should be mistaken, I will farther express my self: It is to cause our Waters and Floods to run low and quick in our two great Rivers of Ouse and new Morton's Leam; for if once these two great Rivers be brought to run low, the Fens cannot be drowned, nor can any other River or Rivelet in our Fens run high.

Likewise, as for the Dimentions of these new Works I have named, and what water way I would make both in the new Rivers, and through our new Sleuces, I shall give you particularly; and in the close of this Design, I shall give you my Reasons, and shew you the Benefit, the King, Kingdom, Undertakers, and the Countrey will receive by this my Design, and way of Draining. And likewise give you my Answers to divers Objections that are, or may be made, either out of peevishness or ignorance, self-ends or malice, whereby to obstruct the carrying on so Honourable a work, as the perfect Draining this great Level.

The River through Marland from the Horseshoep at Wisbridge to German-Bridge, or near Magdalen in Norfolk, will be in length about eight miles; I make this River six foot deep to a perfect sole quite through: likewise I make it eighty foot wide, yet inclining wider toward the new Sleuce, to help the Draught of this River. I leave Foreland to this Bank to the River-ward twelve foot, the seat of this bearing Bank shall be five and forty foot; I leave Forelands off this my bearing Bank to the Land-ward eight foot; the two In-drains I make both of them eighteen foot wide, and six foot deep; by which means I gain good firm Earth out of the River, and the two In-drains, to make my bearing Bank twelve foot high from the superficies of the Soyl, and ten foot broad on the top of the Bank, which being flagged to the River-ward must needs grow well.

As for the Slaker through Murrow-gate I held it alwayes very necessary, by reason the River of Wisbridge was and is so full of short Angles, and every shoulder of those short Angles checks our Freshes running to the Sea, and that small neck of that River at Guyheirne too hard to be found by such a sea of Freshes between those Banks to Whittlesey; that the waters grope the way to finde that small quill to creep out at; wherefore I make from Guyheirne to Murrow-plash, which is two miles,



A single Bank  
from Guybeirn  
to Murrow-  
Plash, 2 miles.

The river from  
Murrow-Plash  
to the Horse-  
shoe, four  
miles long, six  
foot deep, fifty  
foot wide.  
The dimension  
of the Banks.

The new Sluce  
at German-  
Bridge.

The Soyl for  
the new Sluce  
to stand upon

The Materials  
for the new  
Sluce where to  
be bid.

miles, one single Bank, which is on the South-side of that Bank that now is to Murrow-plash; to stand with it equal in height, and that old River to be bottomed six foot to raise that Bank to the Plash, and to have there a convenient Sluce with sufficient water-way into our Slaker in Murrow-gate; this River or Slaker from Murrow-plash to the Horseshoe is about four miles and an half: I make this River fifty foot wide and six foot deep to a perfect sole throughout; I leave Foreland to each Bank to the River-ward ten foot; the seats of those Banks to be forty foot each; the Foreland from the Seat of the Bank to the Land-ward, ten foot each; the two In-drains fifteen foot each, and six foot deep. This is all solid good Earth as Marland, and will raise the Banks to stand at eight foot high from the superficies, and ten foot broad at the top: There will be no haste of this work, till the Banks above be sunk to about five foot high, and till then the North-side of Wisbidge hath no good Drain.

These two Rivers leads us to the new Sluce at German-Bridge, or near Magdelen in Norfolk; and I conceive most are at a stand in their Judgements, as believing this not easily to be performed, yet tacitely do allow, that if this can be effected to be a durable work, the Countrey then must needs be Drained: Yet for better satisfaction of those which doubt, it will not be unnecessary to take the judgements of able, and honest Artifts, and good work-men, so to understand their sense of the feasibility of this work: viz. This Large Sluce, and Navigable Soss, and to give me leave to inform them what I have known, and seen in the like Works.

The soyl, and foundation whereupon this large Sluce, and Soss is to be placed, is very good, being a firm and solid clay, or gale, which is not to be found for that purpose elsewhere; and our materials are most of them by us, as Brick, at Ely and Saltors Load; at Ely and Reach, Lime plenty and cheap enough; good seasoned Oak Planks and Timber in Norfolk and Suffolk; and good Deal Timber at Lynne, and Iron, as good, and as cheap as elsewhere; and there is nothing wanting except Tarras, of which we must use in this Work good plenty, and this is to be had at Dort or Rotterdam much cheaper then here: at Peterborough and Ely, rough Stone for our Foundation and Fillings.

Now



Now I have brought you to the Materials, with which you are to make this Sluce, and Navigable Soss, now follows the Dimentions of them both.

The Sluce I divide into four and twenty Arches, each Arch containing seven foot in wideness for the water-way; the sole of these Arches shall lie level with the sole of Great Owse at German-bridge, or near Magdelen; the Foundation under the sole of those Arches shall be four foot deep; the Supporters or Peires between each Arch, or Water-way, shall be six foot thick, made of good Brick, and other good Stone; for that purpose; and the outwardmost Bricks to be laid in Tarras and Lime; these Arches for the Water-way are made ten foot high from the sole, beside the Crown of the Arch, and so built, and finished above to what height and weight may be thought fitting.

The bredth of this Sluce composed of four and twenty Arches, from their Butting upon the River Owse, to the Butting upon the new River which runs to it through Marstrand, shall be forty foot, besides the Apron to the River Owse, and the Apron to the new River of Marstrand.

To finish this Sluce, there must be four and twenty double Gates to Sea-ward; to play with the Tide, when need shall serve; but these cannot play but with leave of the Fall-gates; which are eight foot broad, and ten foot deep; all those Fall-gates, or so many of them as shall be needful, according to the Floods which are coming down, are drawn up, and then our Gates to Sea-ward play to run out our Floods. In Winter, by reason of the great Floods, they may all play; and in Summer Droughts one may be sufficient to do the work, so uncertain are our Waters, yet shut themselves at the rising of the Tide, or Back-water, and Butt in the bottom against the soles of the several Arches, and Butt on the top as well as on the sides they hang on; and these Gates are to be ten foot high, yet the Spring Tides will over-top them five or six foot, but cannot hurt us, but make us stronger. In this Sluce you have Water-way an hundred sixty eight foot in bredth, and ten foot in deph; this Sluce will vent more Water then will ever come to over-charge it.

Your Soss for Navigation must be placed twenty Poles below this Sluce, for if it stand in it or near it, it cannot be useful at all times, by reason of the great force and stream of water at

The Dimention of the new Sluce.

What is required for the finishing this Great Sluce.

The placing of your new Soss,

the Sluce in a flood; and the Cut which leads from the new river to the Sols must be twenty Pole before the Sluce, lest that coming too near the Sluce, the great Draught of the River there may force down the Vessels to the Sluce, and there they must either break or sink.

The great use  
of a large Sol.

The Sols may be made as large as you please, to hold ten or twelve Boats at a time; and the charge not much more then though it were made for two or three Boats, seeing we shall not need to fear the loss of waters. I do wish the Sols may be made large, for there is no question but Navigation will increase within us, being it is so feizable to be made to Stamford in Lincolnshire, to Roekingham in Rutlandshire, and to Bedford in Bedfordshire.

As for your Sluces at Ditton, at Croyland; at Murrow-Plash; at Guyheirne, with that small Cut which I desire may be made at Littleport Chair, these are but small Works, and will cost but little money; I have given the reason for them, and the great use of them before.

The Dimen-  
sion of the sever-  
al Rivers.

One thing more I shall adde to what I have already said, The Slaker through Murrow-gate is four miles and an half long, and it is fifty foot wide; Wisbidge River from Guyheirne, with the new River to German-Bridge, or near Magdalen, is twelve miles long, and eighty foot wide; Great Owse from Saltors Load to the same Sluce at Germans is eight miles long, and an hundred and twenty foot wide; these Rivers being joynd all together make a goodly Indraught, as well as Rivers, at your very Out-fall, all of them bound in with gallant Banks of good solid and durable Earth, as can be desired; which Rivers will receive more waters from a Flood, then all those Receptacles upon Bedford River, and Morton's Leam, which are so farre within Land, to the great danger of the Countrey, and the vast expences of the Undertakers; and in our greatest Floods, and most sudden Rains, our waters shall never rise so high within us at the great Sluce at Germans, as doth the half Floods at the Ordinary Tides without us; then I hope it will be confessed, that our Fens, and the whole Level, and all those Grounds mentioned, must be dry as well in Winter as in the Summer.

The said Ri-  
vers to receive  
more Waters  
then the Re-  
ceptacles now  
made.

This was the  
Design, Anno  
1649.

This was the DESIGN I would have finished in the Year 1649. when I was DIRECTOR.

But it will be Objected, that the former Works I mention will.

will cost much money; I shall answer to this, and other Objections; but this first, because it concerns the Adventurers which lay out the money.

If that the old and new Adventurers have laid out in the Draining of this Great Level, these thirty years and more, five or six hundred thousand pounds, and if they believe this Design and these Works will perfect the work of Draining, surely then they will lay out one whole years Rent and an half to make all their moneys good, and free themselves from such vast expences, which will be swallowed up in the yearly Repairs of those uncertain Banks. Several Objections answered.

If this Design, being perfected, doth take away all fears as well as future charges, and bring the Level into repute and credit, it will be worth their expences, and twenty times more.

And when this Design is thoroughly understood, and the insufficiency of the moory Banks, this Design is to be followed, otherwise this Level must be left in a worse condition then it was found.

And lastly, since this Objection is of such force that it will cost much money, I then say, if a year and an halfs Rent will treble my Rent yearly, to what it yields at present, I must conclude my self none of the best Husbards, that will not lay out so much money to such an advantage. I will now answer some other Objections.

That there is as much done for the Draining of this great Level as can be done, and that it is not in the Invention of man to do more then what is already done. 1. Object.

This is the opinion of those which give credit to our moory Banks, and understand not the Descent nor Ascent of this Level in general, nor do they know the Descent that may be gained to the Sea, but will say, if Banks will not do the work, there is no more to be done; but do dishearten all men from doing or attempting any thing, lest their weakness should appear.

Why did you then, when you were Director for the Work, make such great and high Banks upon Morton's Leam, of two and fifty foot in the seat, twelve foot high, and eight foot broad at the top? 2. Object.

All this I did it is true, but those Banks I did not make for Sea Banks, or to withstand such a Sea or Wash as now they have, but laid them near to avoid a Winde-catch; and I told

the Adventurers at Wisbridge in 1649. at their Meeting there, that those Banks made so high by me then, would not stand above four or five foot high twenty years after their making; and I did promise them then, that (my Design being finished) the Floods should never charge those Banks above two foot; and it must have been so, if this Design of mine had gone on, and been perfected; neither was it possible that this two foot of a Flood should have lain out of the River three neaps of a Tide, if the Sluce at German-Bridge be suffered to run.

3. Object.

Many wise men are of opinion, that the Banks being Repaired every Year, the Draining may be perfected.

Ans.

Wise men may think so, and the Countrey men which get all the money for Repairing every Year will tell them so, till the Charge exceed the Profit; but if they look upon Deeping Fen drained with moory Banks by Captain Lovell, and continued a small time rich Ground, till the moory Banks were rotted to a mould, then the Banks failed, though there was no cost spared by the Right Honourable the Earle of Exeter, to repair or maintain them; yet it is now, and hath been these twenty years under water, and nothing to be had from it but a little Fish; yet this Fen doth contain thirty thousand Acres of good Land (if drained.) Look upon Bishop Morton's works; the Lord Popham's works; Governour Peyton's works, the Honourable Francis Earle of Bedfords works, all these Honourable persons were wise men, and undoubtedly did act by a great scale of Prudence in their Undertakings, yet could not make their moory Banks any longer durable; then till the moor became mould: These Presidents are all within our Level, and in the memory of this our age.

4. Object.

But if you run our freshes so low in Winter, what shall we do for water for our selves and Cattle in Summer?

Ans.

Whilst you have water at Deeping-Bridge, at Peterborough-Bridge, Saint Ives-Bridge, Cambridge-Bridge, and at the Bridges of Milnall, Brandon, and Stoke, undoubtedly our Level cannot want water; for under these Bridges come all those waters which drown us, and under these Bridges shall come those waters for us, and our Cattle. Yet take notice; that the great Sluce at German-Bridge, or near Madelen, is able to hold up the waters, with little help, as high as you please; then it will be confessed to be an absolute Draining, when we can Drown, and Drain at our pleasure.

But

But how shall those Fens in Norfolk, Suffolk, and Cam- 5. Object.  
bridgeshire, which lie on the East-side of Owse, be drained,  
for they lie the lowest of all the Fens in this Great Level?

If great Owse run low, then all these Fens you name will lie Ans.  
dry, for still your great Sluce drains all your waters out of Owse,  
and Morton's Leam; if you please; but then Navigation will be  
hindered, which is to be helped by bottoming of those Rivers  
where there may be occasion, neither is the bottoming of a  
River so chargeable as banking.

Wisbridge River may run where it doth, as well as at German- 6. Object.  
Bridge; to go through Marstrand, the Ground will cost dear, and  
that money may be saved.

To answer this I have much to say; first, Wisbridge Out-fall Ans.  
lies high upon the Washes, and then it is too near our Fens to  
check our Freshes; my drift is to keep the Sea at a greater  
distance, that I may have our Freshes at all times both night  
and day, to run quick under the Bridges of Wisbridge, and  
Downham, without the least check. Again, the River at Ger-  
man-Bridge lies lower then the River at Wisbridge-Bridge, and  
there is more fall from Wisbridge-Bridge to German-Bridge at  
low water, then at the fall from Peterborough-Bridge to Wis-  
bridge; and our Out-fall at Lynne is below the Washes, and  
this River of Wisbridge joyned with the River Owse at the  
Sluce, makes a gallant In-draught, and will gain Lynne a com-  
pleat Channel to Sea, to the great benefit of that fine Town,  
and the Town of Wisbridge. As for the charge of the Ground  
through Marstrand, I may justly answer, good and great things  
are not done without cost; but the cost of this will not be  
much, by reason we may carry much of the River through the  
Common, viz. the great Common belonging to the seven  
Towns in Marstrand, and the Common called the Smee, and  
Drain them both, which the Marstrand men will thank you  
for.

The River of Wisbridge is (as it is now widened) sufficient to 7. Object.  
carry in it all those waters which fall from Peterborough, and  
therefore you may spare your pains and cost at Murrow-gate.

Wisbridge River is wider then it was, especially at the Out- Ans.  
fall, which doth, and will destroy us; but it is not the depth nor  
the width of the River that will drain that Level, it is the  
descent, and quick current, that must do our work: But this  
River

River is so full of small Angles, to shoulder up our Freshes, yet I will say, it will serve till the moory Banks in the Fen be sunk. But it is good to be sure in this great Work, for if this River should prove defective, to receive and carry away a great Flood, it is not onely the loss of having our Grounds drowned, but may be the ruine of many good mans Estate, to the value of ten times the charge of making the Slaker through Murrowgate, to the Horseshoe; beside, the benefit of this River, and the In-drains to drain all the North-side of Wisbidge, which is many thousand Acres of good Land.

8. Object. The Tide being stopped at German-Bridge, or near Magdalen, will rise higher, and run over our Banks, and drown us in Marland.

Answ. This Objection is easily waved, the Tide hath its bounds, and cannot rise higher then its center at Sea, and though it be stopped at German-Bridge, it shall not rise higher by the thicknes of one hair, as if it never had been stopped at all.

9. Object. But your great Sluce and Sofs at German-bridge, or near Maddelen, will be quickly silted up, and what will become of the Fens then?

Answ. It is impossible it should, being no silt comes near it, nor any salt water, for which I give this reason; viz. The Freshes at low water have got the Channel at Lynne, there the Tide comes in, and beats the Freshes back; the fresh and salt water unwilling to mix, the Tide beats back those Freshes to its own height, that so two miles below the Sluce at Germans it will not be brackish. I hope the River of Thames at Blackwall and London-bridge will give you an experiment; and if no salt water at the new Sluce, and Sofs, it must be confessed, no silt and sand.

10. Object. We have great Frosts some years, and then upon a sudden thaw the Ice comes down and will choak your Sluce and Sofs.

Answ. Sosses and Sluces are the means to prevent the danger of the Ice in a sudden thaw. It is confessed, many Bridges by the force and weight of the Ice have been beaten down, but the use of Sluces prevents that danger thus: In great and long Frosts we can have no Floods, and if our Rivers are frozen over to make it impassable for Boats, then are our Sluces to run; by this means I sink the Water, and the Ice with them, as low as I can, then by our Sluces I hold up our waters, and this water riseth



riseth one foot or two above the Ice, which is frozen fast to the bottom of our Rivers after a night or two lying there; and although they be not dissolved, yet they are so rotten, brittle, and short, and cannot hurt either Bridge or Sluce: this I have made experience of by Sluces, and can prove it; and this is practised in Holland, Freezeland, and Gronning.

Our Division Dikes, and all our Dikes in our Fens, though they be made twelve foot wide, and six foot deep, they keep their width, yet in our dry years the bottoms rise two foot, and our Dikes become shallower, and they are no good fences.

Observation and experience will teach you, that the bottom of your Dikes grow not up, nor rise as you say, but it is your Ground lying dry, the Moor Earth groweth solid to a good and fruitful soyl; and it is not your Dikes bottoms which rise, but your Grounds which sink, and become much better; therefore when your Grounds are thus sunk with lying dry, bottom then your Dikes two foot, and your Dikes will hold good for many years.

It is perceivable by your Design for the Draining of this great Level, that in a flood we shall have no Navigation upwards from your new Sluce up Bedford River, up Owse to Cambridge, or up your new River to Wisbidge, and Peterborough, by reason the waters will run so quick that we cannot hale with our Horses against the stream, but our three Rivers will become like the river Rhyne for swiftness in a flood.

It is granted, the Rivers in a flood will run quick, by reason they have water-way, and fall sufficient at the great Sluce; but this force of a flood will not last for above a day or two, it may be longer, and it may be not so long, therefore you must stay while the flood be past; neither are these Rivers so much your enemies, as constantly to oppose you, as the river Rhyne doth: All which work against a constant stream must have patience, and so must you; yet the motions of these great Vessels down the river Rhyne are quick, and so will yours be in a flood, which lasts not long, neither will they be common with us; for the Comparison will not hold between the river Rhyne and any of our Rivers in our Level.

If this Design of yours be perfected, we may then lay all our Boats aside, as having no use for them; for Owse, Bedford River,

11. Object.

Answ.

12. Object.

Answ.

13. Object.



ver, Morton's Leam, and the new River through Marfland, will draw in all our Land waters.

Anfw.

It is confefled that Morton's Leam and Owfe will run low, by reafon that at German-bridge at low water mark, the River will be lower then the height of the Level foyl at Saltors Load, by twelve foot, and much more; and fo likewise it will ftand with Guyheirne, and there fhall be no need of raifing the Banks from thence to Bevis-hall, for there is Bank enough, and the River will run lower then the Soyl or Superficies of Wisbridge high Fen, for Wisbridge River will quickly grinde it felf to its old bottom, and keep it; and it is feizable and neceffary to bring part of Owfe from Erich unto Wisbridge, by the West-water, through the Town of March, and the other branch by Chatris, Doddington, and Wimbleton-hook, without the haz-

This is of great  
ufe to the Cor-  
poration and  
the Countrey,  
for Navigati-  
on, and water-  
ing the Middle  
Level.

zard of drowning any part of the Level; and will water all the parts of the middle Level, even to Maney, the two Wells, and to Saltors Load, and will prove good for Navigation to the Undertakers, and the Countrey which have quantities of Grounds lying upon this West-water; and if the Divifions of the Intercommons be laid out, there will be a neceffity that this Work of the West-water be made good: This (you will fay) will afford you water-way for your Boats, No, ye are deceived, for without the ufe of means at our Out-falls into Bedford River, Owfe, and Morton's Leam, to hold up your In-drains, you will ftill have no waters for your Boats, and this will coft money; which to do, I compare it to Paper and Packthread, in comparifon of the rich Commodity bound up in it.

14. Object.

We have now two gallant In-draughts, as Bedford River, and Morton's Leam, for our Floods to bed in, as Receptacles; and after the Flood is fpent, thofe run and fcour the Out-falls, and maintain them.

Anfw.

I know not what you mean by an In-draught, but if you believe either of thofe Rivers to be your In-draughts, in which your Waters now bed, whose Banks are at fuch a wide diftance, and at fo great a diftance from your Out-fall, as near twenty or thirty miles, it is a Riddle to me, and beyond my understanding, and in my Judgement againft all the rules of Draining; for in all Draining we have refpect to our Out-fall, for if we cannot be mafter there, all other endeavours fignifie nothing.

You

You may as well call Whitlesey Mare, Ramsey Mare, Soham Mare, In-draughts; and the Dutch may better call Harlem Mare an In-draught, for none of those I have named are In-draughts, for there can be no In-draught, but it must be close to the Out-fall, otherwise it works no effect. You have an example in Holland, and in all the Low Countreys, their In-draughts are at their Sluces close to the neck of their Out-falls; neither is there any Haven, River, or Creek, lying upon foul Seas, that hath not sufficient Freshes to maintain its Out-fall, but he must by Art gain an In-draught, which In-draught must be at hand to use when there is occasion for it; for all true In-draughts are to be held up, and are to be made use of at the last quarter Ebb, or before, and so it works its effect; but when the In-draught is about a mile or two above its Out-fall, it is so weak upon its stream by that time it comes to its Out-fall, that it cannot work any effect to the cleansing of either Haven, River, or Creek.

The Receptacles between the Banks no In-draughts.

The proper place of the In-draught.

The Reason wherefore.

I shall onely instance in two Havens or Harbors, though I could trouble you with many; the one is Dunkirk in Flanders, the other is Delfts Haven in Holland: As for that of Dunkirk I have seen it when upon the Wharf they have been forced to use a Ladder to go up into a Ship of an hundred Tun at low water, the next day they have been forced to use the same Ladder down from of the Wharf into the same Ship; this might seem strange, but it was strange to me to see by what a small means this Effect was wrought, which was thus: viz. In all dry Summers the Haven is very subject to be silted up by the Sea bearing its foul waters into it, by reason of the many shelves of sand upon that Coast, so that the ordinary strength of that small River coming from Bergue, is not able to carry out of that Haven what the Sea lodgeth in it, but then Reason and Industry doth the work of that Haven thus: When the Haven is silted up to such a height, the Town causes the River aforesaid to be kept up by their Sluce, or Soss, for some eight or ten dayes together, then they command the Ships and other Vessels in that Haven to ride in the midst of it as close to each other as they can, and being thus placed, they at a Level water open their Sluces and Sosses, and give liberty to the pinned up waters from Bergue to run through the Haven, so that it grindes the bottom through the Intervals between the Ships, that it carries

Dunkirk and Delfts Haven.

Wynox Bergue

How the Haven of Dunkirk is cleansed by the In-draught.

away all the silt and sand out of the Haven, whilst the ships rock too and fro, as if they would fall one upon another; and by this means the Haven becomes as deep again. It is much the same with Delfts Haven in Hollaud, and that small River which comes from Overkey to the Town and Haven, doth the like effect with that of Dunkirk, otherwise there could be no Haven, but by reason the Sluces which cast their In-draughts into both these Haven, stand at the very entrance of them, otherwise they could not grinde and effect so great a work.

The Receptacles in Waldersey dangerous to Coldham and Waldersey

Now look back to our selves which have been so much mistaken, as to make Receptacles of In-draughts within Land so remote from the Out-falls, and you may be assured, that if the Receptacle or In-draught made at Waldersey, had taken that effect as was supposed, to have received from a Spring Tide from Sea six foot water, yet it could not have done you any good, by reason it lay so far from the Out-fall: but certain it is, that if it had proved that that In-draught had but gained from the Sea, four, five, or six foot water, the Banks had been gone long e're this; and Wildersey and Coldham had been both lost, or little worth.

I shall give you no farther trouble, but to assure you of my readines to answer any other Objections which may be made against this my Design, or way of Draining, to the best of my knowledge and judgement.

Now give me leave to give you my sense of the great benefit which will arise to his Sacred Majesty, the Honourable Corporation, the Countrey, and the whole Kingdom.

Considerable benefit to the King and Kingdom.

His Majesties Subjects in this Level, who were formerly very poor, by reason of the uncertainty of the Banks, and their Ground lying dry, but being once perfectly Drained, will grow rich and populous, to the strengthening of the King and Kingdom.

Advantageous to some Towns

It will better Navigation and Trade to all his Towns in this part of the Kingdom.

His Majesties Land secured from drowning Fifty thousand Acres of good

It secures His Majesties Land, being ten thousand Acres lying in this Level, from all farther charge or fear of being drowned by any Flood, either in Winter or Summer.

Land gained from the Sea, called the Washes, the Kings Waste.

His Majesty gains hereby fifty thousand Acres of good Land, called now the Washes, or Salt Marshes; this Land is equal to those Lands in Mariland, or Holland, for goodness, the one lies on the East and the other on the West-side of these Washes

or Salt Marshes, which is all the Kings Waste: and I do affirm, that those Washes contain more Land then lies in Marsh-land it self; and more, those Washes lies much higher then doth Marland or the North-side of Wisbidge; yet through this Wash doth Wisbidge River, Sheir-Drain, and Spalding River make their way to the Sea. But when Wisbidge River, Sheir-Drain, with Spalding River, are forced to a better Out-fall, as Wisbidge to great Owse, and Spalding River, and Glean secured, to the great benefit of North and South Holland; then must those spacious Washes suddenly become good Land for this reason, viz. for these Rivers by force of winter Floods do scour and cleanse these Washes, and will not suffer the filth or sand to bed upon them; but these Rivers being taken away, which run through, and spread themselves upon these Washes every low water, doth carry away to Sea what the Tide hath left behinde, but the Cause being taken away, the Effect ceaseth, and all those Washes will become good Land at little or no considerable charge; and yet the Navigation of His Majesties Towns of Lynne, Boston, and Wisbidge, much bettered, and prove great Out-falls, and Navigable Channels to the North Sea.

Yet let me tell you, that though the Freshes work this effect, to cleanse and scour the Washes, yet the Washes grow and get height upon them; and though formerly Wisbidge was the best Out-fall in this Great Level, and took much of our waters into it, which now run by Lyn, by reason of late years the Sea hath left us, and the Washes have gained a great height; and in my judgement it is impossible ever to gain any good Out-fall through those Washes, either for the River of Wisbidge, Sheir-Drain, or Spalding River.

The Washes get height upon the Freshes.

No good out-fall through the Washes for Wisbidge, Spalding, or Sheir-Drain.

As for the Noble and Honorable Adventurers I shall say little, onely assure them, that this Design, and way of Draining this Great Level, being perfected, the Great Level will be perfectly Drained; whereby the great charge of maintaining two or three hundred miles in Banking already made, will be taken off; which being of no farther use, will be of no farther charge: neither are they freed from this charge alone, but from the charge of many of their Sluces and Solles; as that of VVell-creek, and that upon Owse, at Saltors Load, and those works at Ely, which will become as useles as the two or three hundred miles

The charge of two hundred miles in Banking taken off.

Some Sluces and Solles become useles.

of Banking. And in fine, it may be believed, that Six pence the Acre *per annum*, will maintain the Charge of upholding the Works, and procure a Stock, if the beforementioned works be once sufficiently effected, for there will be no need of repairing of Banks any more.

The Division  
of the Inter-  
Common.

The benefit which will arise to the Inhabitants of this Countrey will be very considerable, in being freed from all danger of being drowned any more; that they may freely plow, and sowe, build, and plant; and then there will be no fear of the want of water in the Summer, for themselves or Cattle; and which will be very considerable, is the Navigation to almost every small Town in this Level, especially if their Inter-Commons be divided, which will be a great benefit both to the Lords and the Tenants: but in all these Navigable Cuts avoid Banks, and then these Cuts and Division Dikes may be done at a small charge, having a care to carry your leading Drains into their proper Out-falls of Bedford River, Great Owse, and Morton's Leam.

The Province  
of Holland.

I shall not deviat from my present Discourse, if I tell you, that by my Observations abroad, both in my youth and age, I gained some Experience to serve my native Countrey; and that one Province of Holland, I compute to be equally as large as this Great Level; and I do verily believe that there is one hundred times more money expended in this Province, in Rivers, Sluces, Soffes, and Bridges, then can be needful in this Great

The Provinces  
of South and  
North Hol-  
land, Freize-  
land & Gron-  
ning, admits  
no Tides to  
run into them.

Level of the Fens. The Provinces of South and North Holland, Freizland, and Gronning, admit of no Tides or Rivers from the Sea to run into them, onely South Holland admits of the river Maze to run to meet the river Rhyne; yet this Holland runs her water into the river Maze by substantial Sluces, and Navigable Soffes, as I have seen at Mazelandt, Ulerdine, Skeydam, Delfts-haven, and at Rotterdam, all these play into the river Maze, which runs by the Brill to Dort. On the North-side of this Province is Harlem Mare, by Sluces and Soffes, at Amsterdam there are many, at Myden, Nardam, all these run into the Zuyder Sea, and yet those Sluces, and those upon the river Maze, have not one quarter of the ebb to run at.

North Hol-  
land hath not  
a quarter Ebb  
to run at.

North Holland upon the Zuyder Sea hath its Sluces to run at Sardam, Monkenden, Horn, Ancusen, and Middle-bleak, and they have not above a quarter Ebb to run at; though they force

force their waters into those leading Rivers by costly Mills; and in this North Holland much of their richest Grounds, where they make their best Cheese, lie under the low water mark at Sea, at least six or seven foot; as the Bempster, the Skermer, and the Wart, &c. they are all Drained by a multitude of Mills, each Mill costs near six hundred pounds Sterling. In the Skermer I have seen four Mills, one standing four foot higher then the other, and they have worked one so another, till they have brought the water sixteen foot high, to run into the Drains which leads to the Sea.

Draining with a multitude of mills.

Four mills to cast up water sixteen foot.

Freizland and Gronning, from Campen in Gilderland to Dam in Gronning, is all drained by Sosses and Sluces to Sea-ward; the length of those three Provinces is no less than an hundred and twenty miles along the Sea Coast, and yet they have no Rivers run into them from the Sea. I did observe in all those parts of the Netherlands where I have been, they do not admit the Sea to flow into any of their Provinces, but keep it out by their Sluces and Sosses, so far as Art and Cost will promise them security.

Great care to prevent the flowing in of the Sea into any part of the Provinces.

The Sea kept out by Sosses and Sluces.

These Works of theirs will confirm all rational persons, that if they have but one quarter of the Ebb to run at, and lie dry, what can be said against a Sluce and Navigable Soss at German-bridge, upon old Owse, and new Nean, which hath half the Ebb but in a Flood more, because the Freshes do rise one foot within the Sluce, for two foot the Tide riseth against the Sluce without, to Sea-ward.

The Sluce at German Bridge runs at half Ebb, and more.

I hope the experience we all have of Holland, the North-side of Wisbidge, with that of Marstrand, all of them lie below the Pens of the Great Level five or six foot, yet drain themselves into great Owse and the Sea: Neither are the benefits inconsiderable, which Holland, the North-side of Wisbidge, and Marstrand, will receive by this Design.

Marstrand lower then the great Level of the Pens, and yet is Drained into the River Owse.

As for Hollaud, all that Bank called South Ea Bank, from Dowesdale to Clowes-Crofs, being eight miles, which was believed formerly to have been a thousand pounds *per annum* charge, will be secured.

South Ea bank secured.

The North-side of Wisbidge will by this means save the repairing of that Bank from Clowes-Crofs to Guyheirn, and part of the Bank upon Wisbidge River which formerly cost much money; but the greater benefit this North-side of Wisbidge will



The North-  
side of Wis-  
bidge drained,  
and the flat of  
Tid St. Mary's

will receive, is the perfect Draining of all that flat and low  
Country; for which, they of the North-side of Wisbidge, and  
Tid St. Mary's, in the County of Lincoln, did contract for the  
giving a great proportion of Land for the Draining thereof.

1600l. per an-  
num charge ta-  
ken off from  
Mariland.

The great  
Common of  
the 7. Towns  
of Mariland  
Drained, and  
the Smece.

Constant fresh  
water in Mar-  
land.

The Benefit to  
the Corporati-  
on towards  
their charge.

Now as for Mariland their benefit will be the greatest, for  
this work being done, they save the charge of repairing all those  
Banks from Germans-bridge upwards, on both sides of the River  
Owse, to Saltors Load, which is eight miles; and all those  
Banks called new and old Po Dike, which by their confession  
cost them yearly 1600l. And wicthal, they recover hereby the  
great Common belonging to the seven Towns in Mariland, and  
the Common also called the Smece, for which a great quantity  
of Land was offered to those which should undertake the  
Draining of it, as I have been informed. And another consi-  
derable benefit is, they will constantly have fresh water out of  
the River from Wisbidge to German-bridge, and the Bank lying  
upon the West of Mariland upon the Washes, near fifteen miles  
in length, it costs much money, and many times in danger of  
breaking, is hereby secured, the Washes or salt Marshes being  
gained from the Sea, which will be effected in a short time.

If this Work be performed, it is at the pleasure of the Cor-  
poration to Drain the great Common in Mariland, belonging  
to the seven Towns, containing five thousand Acres, with the  
Common called the Smece, containing about fifteen hundred  
Acres; likewise, the Draining of the North-side of V Visbidge,  
containing twelve thousand Acres; also, all those Grounds in  
Holland, belonging to Gedney, Drove, Chapple, Holbidge,  
Fleet, St. James, Tid St. Mary's, which is reported to me to  
contain eight thousand Acres of Drowned Land: And if the  
Corporation please, they may Drain all that part of the Queens  
Mannor in Croyland, called Posant, which will be rich Ground  
if once Drained, and contains in it seven thousand Acres, fix  
whereof belongs to the Queen.

*William Dodson.*

FINIS.



*Answers to the several Objections against this  
my Designe, since the Delivery of it to  
the Honourable Corporation.*

**F**irst, it is objected, that the place that I intend to set the 1. Object.  
great Sluce upon, which is near Magdalen, is a Quick-sand.

To this I answer, that the place I have designed to set the Answ.  
great Sluce upon is no Quick-sand, but a firm and solid Clay,  
as the place where Magdalen Bridge stands, or the Sluce at Sal-  
tors Load, or Well-Creek; and this is at an easie charge made  
appear to them that doubt, by sinking the place twelve foot,  
where they will finde what I have asserted in my Design to  
be truth.

Secondly, It is objected, that the River is deep there; and 2. Object.  
that it is not possible to set a Sluce in the River.

It was never intended to set this Sluce and Soss in the Ri- Answ.  
ver, for that were great folly to undertake; but this Sluce is  
set near the River of Owse, and so cut into the River; and al-  
though the River were as deep again as it is, it is all one; for  
I set not the sole of the Sluce two foot below the Channel (as  
it is pretended) but I set it two foot below the sole of the River,  
or low water mark, and therefore the depth of the River is no  
prejudice to me by being so deep, but contrary a great advan-  
tage, and of much benefit to carry away the Freshes.

Thirdly, It is objected, that if a Sluce should be set there, 3. Object.  
that the Doors of that Sluce must be thirty foot in length.

The Sluce I have Designed is in height from the lowest stone Answ.  
in the foundation, to the highest stone in the work, but eight  
and twenty foot high; the several water-ways in this Sluce but  
ten foot high; neither doth the greatest Freshes within us rise  
above ten or twelve foot upon the Sluce, why should the Flood-  
gates then be made thirty foot high for ten or twelve foot wa-  
ter: you have a president by all those Goats that stand upon the  
River Owse in Mariland, that drain all Mariland into that Ri-

ver, otherwise Mariland could not be drained, yet their Flood-gates are not above five foot high for to the water mark, so that the Spring Tides flow above them, and so drain the water above them.

4. Object. Fourthly, It is objected, that if this Sluce and River through Mariland were finished, it would do no good to the Draining of the Great Level, but no reason is given for it.

Answ. If that the gaining of a great and considerable Descent to the Sea, at the very Out-fall, will do no good to drain that great and flat Level, that lies in a Flood above twenty foot higher then low water mark at the Out-fall, and yet this Out-fall but twelve miles from this flat Level, makes this Objection frivolous. But to give farther satisfaction, I dd define a view might have been made of that River called the Horseshoe, below Wit-bidge, where they might have seen the Tide rise to the height of eight or nine foot up the Banks of that River, higher then the Superficies of Mariland; and if you will stay anfill it be low water, you shall see this River two or three foot within soyl, lower then the superficies of Mariland; and yet the River of Owse at the great Sluce, at low water mark, will be ten or eleven foot below the superficies of Mariland these. For all the descent of Mariland lies from this Bank upon the Horseshoe, to the new Sluce near Magdalen; and the Goats in Mariland on the River Owse doth Drain the whole Countrey into the said River, following the refluxes of the Tide.

5. Object. It is objected, that the stopping of the Tide by a Sluce at Magdalen, will not take away the great waters in a Flood from off the Banks at Sutton and Meapool.

Answ. If the Tide be not stopped here at Magdalen, or Germans, yea, lower to Sea, if it were convenient, it is not possible but that in a Flood, Swacy, Over, Erith, the Washes, and those Banks about Sutton Meapool, Witham, Witchford, and Welney, must all suffer. My reasons are,

1. Reason. First, the Floods come quick from St. Ives, making their way to Sea; the water-way is large enough at Erith, it is confessed, but at Sutton, Galt, and Meapool, in the new Bedford River, there it runs upon an Ascent, the like again at Pyemoor-hill, which is a great Obstruction of the Freshes in a flood running to Sea; for Gravels and Pords in Rivers are a great hinderance to the free passage of all waters: for although the River

River be never so deep, it must be allowed where such Obstructions are, you can run no more waters in those Rivers then what runs over your Gravel or Flints, and it is the same with Sutton, Gule, and Pyemodghill, in new Bedford River. Besides this, there is another great Obstruction, which is the weeds that are admitted to grow in this, and many other of our Rivers, and are of very dangerous consequence, for in a Flood, where our Freshes in this River had but small descent, they hold them up, in such that the Freshes are forced to foyl through those weeds & through a Cleve, which must of necessity cause those quick waters from the Uplands to well backwards, to the great damage of Erith, Swany, and Over, on that side of the Countrey.

Secondly, after the Flood hath passed these three great Obstructions in this River, it meeteth with another rather worse 2. Reason. then the former, which is the Tide and Winde-catch, for when these great bodies of Freshes come to run to the Sea, they then at the very Out-fall meets with the Tide (who visits that River twice in four and twenty hours) and doth not only stop the Current of those Freshes, and forceth them back even as far as Sutton-bridge upon new Bedford River, but if the winde blow hard almost in any Point, when the Floods are within the great Wash of that River, the Banks are in great danger of being lost, or blown up; for it maketh so rough a Sea, that it washes and underminds the Banks, and if it do not break them, it puts the Corporation the next Summer to a vast charge of repairing.

Now on the contrary, to free this Level from the bad Effects of this indirect River, the Tide, Winde-catch, and weeds, to give this River from Erith free passage, by the old and famous River by Id, (for it is old Bedford River that is the River) though it hath been much slighted, yet if it had not been made use on of late years, it had been much worse for the Countrey then it was. For I dare and will affirm, that the Freshes in a Flood shall vent themselves, running from Erith a day or two, at Saltors Load, by the old River, before they come down thither by the new: now, these two Rivers having their free passage, the weeds being cut and rodded, and the Tide stopped at Germans or Magdalen, will free this part of the Level, that is so much oppressed by St. Ives waters, the Winde-catch, and the flux

of the Tide up that River, for the Freshes then in those two spacious Rivers hath no Obstruction; for the Tide being slooped at Germans, these Rivers will run continually, having so great a Receptacle as seven or eight miles in length, without the Level, from Saltors Load to Germans Bridge; for the Freshes at the great Sluce must rise at least ten foot higher than its usual height, to maintain Navigation, before the water can run back at Saltors Load to obstruct the Current of this River, which is impossible, if the Sluce and Soss be admitted to run, for the water-way in this Sluce and Soss is no less than an hundred eighty two foot broad, and ten or eleven foot deep, which is more water-way by much, then runs through those two Bridges of VVisbridge and Downham; now these Rivers running thus continually in the greatest Floods, it will be allowed, that the waters cannot lie long, or rise so high as formerly, by six foot upon those Banks, if so, then the VVinde-catch cannot in the least prejudice those Banks. By this, I hope, it may be perceived, that the waters cannot lie upon those Banks of Sutton and Meapool, or in the least damage Erith, Swacy, and Over. This may be an answer for the River of Morton's Leam to Peterborough, and that part of the Countrey, for the Obstructions are the same.

6. Object.

Sixthly, It is objected, that my In-let of the River from VVisbridge into Marstrand Cut, cannot be performed at six foot deep, at the River called the Horseshoe, as I have Designed it, and they give this reason for it; That if I make my River there six foot deep, the height of the Tide will not reach the sole of that River to be cut through Marstrand.

Answ.

I shall not need to answer this Objection, it being altogether without reason or sense, but referre you to my Answer to the fourth Objection, which will give any one full satisfaction.

7. Object.

Seventhly, It is objected, that the Charge of a Sluce, the Purchase of the Grounds through Marstrand, and the rest of the works Designed by me, will cost 200000l.

Answ.

To this I answer, That certainly they that made so large an Estimate upon those works I have Designed, know how to set a price upon their own; for it is well known, the Estimate I gave in to the Honourable Corporation, with my Design, did not amount to above 46000l. for I had rather, and it was my resolution, to ask more, or at least as much as would do the work,

work, (having so short a warning) then ask less, and the Corporation should finde it more, thereby to induce the Corporation to make use of my Design; but upon further consideration, and having better digested the charge, I have since for the better satisfaction of this Honourable Corporation, made a Moddel of part of the great Sluce, and the Soss proportionable, to shew the true Dimention of the same; which Sluce and Soss will be undertaken at a price, by able and sufficient Workmen. And that such mistakes as these may not affright the Corporation from going on with so Beneficial a work, I have here annexed to my Designe, the Estimate of all my works, as they are, and will be undertaken, and shall be ready when this Honourable Corporation please, to make every particular of this Accompt appear.

h<sup>o</sup> Eighthly, It is objected, that this Sluce is to master a quick water, which is not believed it is proper; for the reason is, they have not known the like practised elsewhere.

As to this I hope to give full satisfaction, by several Reasons, and Examples of other Countreys in the like case, as also some known to our selves within the Isle.

I shall instance in the first place Freizland, which is a larger Countrey then this Level by much; here all Winter their Grounds lies very deep in water, frozen over with Ice and Snow, this they thus suffer, to keep their Ground warm, and by this means preserves the roots of their Grasse from perishing by the Frost; and in February or March, when the weather breaketh, they then run all these waters out into the Sea by their Sluces, which runs quick and violently for one moneth and more together, (more quick then ever it will run at the great Sluce) neither have they any way to avoid their great and quick waters but by Sluces.

Secondly, It is the like with North Holland and South Holland, by the multitude of Mills, working all the latter part of Winter, which causeth a very quick River to their Sluces at Sea: and I doubt not but these all may be termed quick waters.

Thirdly, If we look at home, we shall finde that we had a gallant Sluce upon the River of Wisbidge, which was of great use until it was overcharged by the River of Welland, which was contrary to the intentions of the then Adventurers; for there

was no waters intended to that Sluce, but what run under Peterborough Bridge, from Burrough Fen and Thorney, and the water-way was made accordingly in that Sluce; and that Sluce was useful and convenient in that place, and might have been to this day.

4. Fourthly, Come to the Soss at Well-Creek which is still standing, and hath to the great benefit of the Countrey these thirty years, preserved Navigation, and wrought that River to a great depth, and keeps it: This may be justly called a quick water, upon ever Land floods, or Down-falls.

5. Fifthly, Look upon the Sluce upon old Bedford River at Saltors Load, which is still standing, and for many years preserved the Out-fall of that River, until our Troubles began in England; and then the people stole away the Flood-gates; so that the Out-fall of that River was suddenly sited up; and this Sluce stood upon a considerable quick River.

6. Sixthly, Come to the open Soss and several Sluces at Saltors Load, which was set down some fourteen years since upon this great Quick, butting upon the Tide from sea, (and although it was made of wood, which cannot be durable against the sea) neither was it set in its proper place; yet it is clear it did much preserve that part of the Level, and also maintained Navigation whilst it was kept in repair.

Now give me leave to give you my Reasons, that a Sluce upon a Quick water is as useful, with as little danger, as a Sluce upon a Dead water, as it is termed; it is confessed, that a Sluce upon a Quick, that hath not water-way sufficient, is little better then a Dam to obstruct the Current of those Rivers in a Flood, and is destructive; but if there be water-way sufficient, and to spare, in the greatest Flood, then this Sluce or Soss preserves that Countrey from all sudden and quick Floods without danger. And for the prevention of all sudden Floods, it must be granted, that no Flood falls into this Level, but by great Rains, or sudden Thaws, in the Upland Countreys; of which we cannot but be sensible some dayes before it come down, in which interim of time we pull up all our Fall-gates, and run our all our Freshes that are holden up by the Sluce to maintain Navigation, so that when the Floods come down, the Rivers are empty (if clear of weeds) to receive them; and if I run twice the water of those Bridges where the Floods must come



come under, certainly I may wait three hours in twelve upon the re-flux of the Tide, and yet not so much if the Flood be great, for as the Tide riseth two foot without us, the Freshes in a Flood rise one within the Sluce, by which means we run the sooner, for our Freshes run whether the Tide be coming in or going out, until the Tide rise higher then our Freshes, and shuts the Flood-gates.

These Examples and Reasons I hope may be sufficient, and give full satisfaction to them that doubt of the truth I have asserted in my Design, for unless (in my judgement) we can master the Tide, it is not possible to Drain this Level.

Ninthly, It is objected, that the Sluce I have designed will not bear the weight of water that will lie against it, and that the Eager will carry away the Sluce. 9. Object.

To this Answer, that the Sluce I have Designed is in the Foundation two and fifty foot broad; the breadth of the Sluce upwards is forty foot, and besides this breadth, between every Arch a Butterice raised from the foundation, on both sides the Sluce, of three foot square, all of good Brick, Stone, Lime, and Tarras outwardly, which I do affirm is thrice the strength of any Bank in Marland: And further, to support this Sluce, which in my judgement needs none, I keep the water eight foot high constantly to Land-ward, to maintain Navigation, so that I can have but the weight of ten foot water upon my Sluce in the greatest Tide. Now as to the stopping of the Eager, which is no more then the flux of the Tide from Sea, which comes in quick, I shall onely say this, That if the Tide be once stopped in any River whatsoever, by Sluce or Dam, it hath no more force; for when the Current of the Tide is so stopped, it riseth against that Sluce or Dam insensibly, and those Sluces or Dams bears no more but onely the weight of water that riseth upon them.

Tenthly, It is objected, that if the Tide have not his Flux and Re-flux up Owse, it may be feared that Lynne River may be lost. 10. Object.

Where Sluces with In-draughts are placed to any Out-fall near the Sea, they alwayes make good the Channel or Out-fall without them, as well as deepen the Channels of those Rivers within them; now the flux of the Tide is but a small distance from this Sluce, and the re-flux the same, which continual motion

motion of the Tides ebbing and flowing in so short a distance, it cannot fill up that River, especially when there is so great a Fresh within our In-draught, in those two great Rivers, that leads all our Freshes and Floods to that Sluce, and follows the tail of the Tide to Sea; which must in all reason grinde the Channel to Sea, to a great depth, below Lynne; and as it is now uncertain and dangerous, this will improve it to the admittance of greater Vessels then formerly, to the great benefit of that Port. And if the way that I have Designed to Drain this Great Level should prove any wayes injurious to this Town of Lynne, I would soon desist from prosecuting it any further; but I hope by this they understand a benefit and no damage to that Town.

11. Object.

If I divert Wisbidge River from running through the Washes, or salt Marsh, then all those Washes will become good Ground; but then that part of Holland from the Sheir-Drain to the River Welland, with the North-side of Wisbidge, will be lost, by reason they will lose the Out-fall of Sheir-Drain, Sutton-Goat, Fleet-Goat, Quapload-Goat, and Weston-Goat, which are their Drains into the Washes.

Ans.

To this I answer, to Drain one part and Drown another, is no part of my Design, but what I endeavour, is to perfect and Drain that part of Holland, with the North-side of Wisbidge, and yet Drain the great Washes containing near fifty thousand Acres of the Kings and Queens Waste, without prejudice to any Land-holder in that part of Holland, or North-side of Wisbidge, but to their great benefit. For it will be confessed, that the Town and High Lands of Tid St. Mary's, Sutton, Gidney, Holbeach, Quapload, Molton, to Spalding, lies higher by six foot then the low Grounds on the North-side of Wisbidge and Holland, and all these High Lands before named, lies betwixt the Sea and these Low Grounds; so that Cubbet, Spalding, Drove-Chappel, Gidney, St. James, and Fleet, are forced to Drain themselves by small Cuts through this Ascent betwixt the Sea and them; in some place three, four, five, or six miles, and many of them seven and nine foot deep; yet for all this great depth of those Drains, a great quantity of those Low Grounds are drowned commonly two foot; although you are at great charge with the spade to keep your Goats and Sluces open into the salt Marsh or Washes,  
and

and yet cannot Drain your selves : (the reason is plain) for it is well known to the ancient Inhabitants, that the Sea of late years hath lodged its silt and sand some feet above your Sluces or Goats to Sea, and in short time the loss of much good Land may be feared, yet to help you I do endeavour, but to hurt you, or any part of the Countrey, is no part of my Design. Now to free you from these inconveniences, the turning of Wisbidge River through Mar-land near to Germans-Bride, will be of much advantage and benefit to those low Grounds; for by the help of the Sluce at Germans, we keep Wisbidge River, when we please, as low as we will; and this River of Wisbidge will prove the Out-fall for all those low Grounds of Holland, and the North-side of Wisbidge, and perfectly Drain them Winter and Summer: My reason is this, Those low Grounds in Holland lies higher then those low Grounds on the North-side of Wisbidge, and those waters in Wisbidge River will lie lower by six foot then the superficies of those Lands or drowned Grounds on the North-side of Wisbidge; so that at all times, by the help of a Navigable River, through that part of Holland, from Cubbit upon Welland, to Grammoke-house upon Sheir-Drain, and from thence to Murrow-gate, and so to Leverington, into the River of Wisbidge; where you have so great a fall, that it absolutely Drains all those drowned Grounds aforesaid, and the best and most certain Out-fall for Sheir-Drain, when Clowes-Cross will give leave, to the great benefit of Thorney, Burrough great Fen, and the Town of Croyland. This work will not onely be of use to the perfect Draining of all those Grounds, but likewise better Navigation from Lynne, Wisbidge, and Peterborough, to Spalding, to Boston, to Croyland, to Deeping, and to Stampford, by the help of a small single Soss placed upon Welland River near Cubbit. This I have now said may be performed at an inconsiderable Charge, considering the Profit it brings with it, with the consent and allowance from the Honourable Corporation, of which there is no doubt, but they will be very willing to serve the Countrey upon so Publique an Accompt, being of so great Advantage to those parts and little or no damage to themselves.

Thus having (to the best of my judgement) Answered the  
 aforesaid Objections, and do confess my obligation to him, or  
 them that did make them; by which means, Reason will finde  
 the better allowance, and truth appear with more lustre. I  
 shall now trouble the Reader with some few Objections of  
 my own, against that Design last intended to be put in pra-  
 ctice, which were made according to the Order of the Ho-  
 nourable Corporation; and shall as willingly receive satisfacti-  
 on from him, or them, which are the present Directors, as I  
 am desirous my Judgement, in this Affair, may receive their  
 Approbation.

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*According*

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*According to an Order of this Corporation, the 17<sup>th</sup> of November, 1664. I do here, with submission to the said Corporation, humbly tender these my Objections following, against that Design now in agitation.*

**W**Hereas it is designed by this last new Design, that all Rivers shall be left open to the Sea, for the Tide to have his free passage into all those great Rivers.

First, To this I object, that if the flux of the Tide from Sea 1. Object. be admitted to flow up old Owse, Bedford River, and Morton's Leam, that the Banks that are made, and to be made, in Order to this Design, cannot secure the Level from Inundation, or Drowning. My Reasons are as followeth:

First, The Tide flowing up the River of Owse, and Wis- 1 Reason. bidge, hath been the destruction of all those Undertakings, for the Draining of the Great Level, the reason is plain; the Spring Tides at Germans rise twenty foot from low water mark, and at Wisbidge it riseth fourteen foot at least above low water mark, running to Sea; now the ascent of the Tide from Sea flowing so high within our Level, obstructs the Freshes in their Current to Sea; and not onely that, but bears our Freshes back (as I am credibly informed) that the Freshes have been seen to run back through Sutton-Bridge towards Erith, which is near thirty miles from Germans, the same it is with Morton's Leam up to Eldernel: therefore the flux of the Tide is not to be admitted into any of our Rivers.

Secondly, If the Rivers be open to Sea every Spring Tide, 2. Reason. if the windes blow hard at North or North-west; all the Level is in danger of drowning; (as for example) the last Winter when you had little or no Land Floods, the Spring Tides putting in with a strong North wind, put Morton's Leam in great danger; and as for Bedford River, it raised the waters so high, that it carried away a considerable part of one of the best Banks, to the great damage of the Corporation and Countrey.

Thirdly, If the three Rivers be left open, and admit of the 3. Reason. Tide to flow up them, then Peterborough and those parts adja-

cent must suffer, and so must Erith, Swacy, and Over, in that part of the Countrey: neither can Haddenham, Swaftham, Water-beach, Stretham, or Wilberton, be freed from the said inconvenience, for it must be confessed at all hands, that Morton's Leam lies much higher then Bedford River, and Bedford River lies much higher then old Owse; and likewise it will be allowed, that the Tide will flow equally up these two Rivers of Owse and Bedford River, (for water will finde his level) now certainly it was very indiscreetly done of him, whosoever he was, that did give direction for a Bank of six foot to be made upon Owse, and Grant, against the Tide, Owse being the lowest River in the whole Level, when they make Banks of ten and twelve foot upon Bedford River and Morton's Leam, which lies higher then this River by much. And as for those Banks designed to be made upon Mildenhall, Brandon, and Scoak, with those from Stretham-Ferry up to Aldry Causey, they will not be able to secure that Countrey; for as it is with Bedford River at Erith, Swacy, and Over, the same it will be with Stretham, Wilberton, Haddenham, and that part of the Countrey; yea, rather much worse, by reason the River lies so low, it will give the greater reception to the Tide: for when the Tide did flow up Owse formerly, I have seen the water rise a foot at Stretham-Ferry in a Spring Tide; and now the River being widened from Saltors Load to Littleport, you will finde it will flow into those parts with a more Eager then formerly, to the destruction of that Level.

4. Reason.

Fourthly, If Owse and Bedford River be open to Sea for the Tide to have his flux and re-flux, then will all Marstrand be put in a hazzard of utter ruine, they being now at a vast charge to keep their Banks from the fury of the Eager, by lining their Banks with Brink wood, which is caused but by the admittance of the Tide into one River; but when it shall have its free ingress and regress into those two spacious Rivers of Owse and Bedford River, it will double the strength of the Eager in his flux from the Sea, having so great a reception above: And farther, in a Frost when the Ice shall come down those two great Rivers, expecting to go to Sea, the Tide sends it back again, so that of necessity it will gore their Banks, and hazzard their Bridges; the like it will be with the Banks of Owse, Bedford River, and Morton's Leam. And whereas it is supposed, nay be-



believed, that the flowing of the Tide up Owse will ease Bedford River, that the waters shall not rise so high there as they use to do, it is a great mistake, for the Sea is as well able to furnish the whole Level with a conflux of waters, as those two Rivers; and there is no doubt but the Tide will rise as high in both Rivers, as ever it did in new Bedford River; but if his water-way be not wide enough in Owse at present, he will run so much the stronger, and in a short time he will make his way, having so great a reception, as is now allowed him, though to the great prejudice of Marstrand.

Whereas it is likewise Designed, that a new Cut be made from Rassefs Dam to Littleport Chair, and the old River Dammed up near Rassefs Dam.

To this I object, That if you make this new River from Rassefs Dam to Littleport Chair, and dam out Owse, and suffer the Tide to flow up, (which must of necessity when Saltors Load Sluce is taken up) you hazzard the loss both of the new Cut and old River; for the making of this new Cut is no more, then what was done by the Right Honourable, Francis Earle of Bedford, and his participants in Lynne Law, and was called Sandys River, yet they did never attempt to dam up Owse; this River was made then in a direct line to Littleport Chair, and they then admitting the Tide to flow up Owse, it was in four or five years silted up and utterly lost, although they had four times more Freshes to maintain it, then this Designed River is like to have: And as to old Owse, if you admit a Dam upon that, then the Tide will without all question silt up that River, having little or no Freshes admitted to run through it to scowr the silt away; so that consequently you must lose both the new Cut and the old River.

Whereas it is Designed, that for the maintaining of Navigation, the Weeds in the Rivers are not to be cut or roded in dry Summers, that the waters may not run out of the Countrey, but hold up your Freshes.

To this I object, That if you keep not your Rivers and Leading Drains to them well roded twice in a Summer, you hazzard your Meadows, and other good Grounds, to a sudden flood from the Land-water, for the Weeds hold up the Freshes more then Sluces, and these Weeds admitted, decays those Rivers and Drains they are suffered to grow in, and destroyes Navigation.

4.

Whereas a multitude of Banks, Weer-Dikes, Cuts, In-drains, Counter-Banks, Sluces, and Tunnels are Designed for the Draining of this great and flat Level, to the vast expence and charge of the Corporation.

4. Object.

To this I object, That the number of the several Works in this Design, is an hundred and odd, and most of them vast and chargeable; and if the Sea be admitted to flow into the Countrey, they are no wayes able to withstand the flux of the Tide, brought in by a Northerly or North-West winde, meeting with the Land-floods: On the contrary, if the flux of the Sea be stopped at a distance from the Level, then they are usefless, and may prove hurtful, and hinder the descent of the Down-fall, or small Drains, into the three Rivers that will run low to receive them. Now before this Design was known, it was declared, that there was no less then three hundred miles of Banking to be repaired, and this new Design speaks of more Banks to be made, with new Cuts, In-drains, and Counter-Banks, which charge of making and repairing, I fear will cost more then the Annual Rent of the 95000. Acres is able to maintain: And although these Works mentioned were finished, the whole Level would be in a perpetual danger, for it is no other then what hath been practised these fourteen years, to carry the Freshes so high, as to ride the Tide; which I doubt not but both the Corporation and Countrey are sensible of the difficulty to effect it with Banks of Moor Earth, and in truth not to be performed. As for your Brick-tunnels under your Rivers, they are no wayes useful in this flat Level, whether you admit the Tide in, or keep it out: If you exclude the Tide, it may be requisite to have small Sluces upon the Out-fall of your Creeks and Leading-Drains, where it may be needful, into the three Rivers, to hold up water for your Cattle, by reason your three Rivers will run so low.

By this you see my Objections and Reasons against the flux of the Tide into this flat Level, which if that should be stopped, then you need not the help of those chargeable Moory Banks, which hath so often deceived you, excepting Bedford River, and Morron's Leam Banks, which in twenty years will require no repairing, nor can suffer any Breaches, by reason the Freshes cannot lie three neaps of a Tide two foot upon the Banks. Besides these two now named, there is Burrrough single Bank

Bank, from Peakirk to Croyland, four miles in length; likewise Croyland single Bank, from Croyland to Clout-house, two miles in length; these must be kept in repair to resist the River Welland, which lies much above our Level, and is excluded from us; so that it is easily perceived, that four or five hundred miles of Banking will be laid aside as useless: For if you exclude the Tides your vast and uncertain Charges will be taken off; but on the contrary, if you admit the Tide to flow into the Level, as is intended by this new Design, your Banks, Counter-Banks, Weer-Dikes, and Tunnels, will not secure the Level from Inundation.

Thus, according to your Order, and for the better satisfaction, that so the truth might the better appear, I humbly tender these my Objections and Reasons against that Design now in agitation, and leave my self, with them, to the Judgement of this Honourable Corporation.

*William Dodson.*

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*A Breviat of the whole Charge of the Works mentioned in Colonel DONSON's Designe; for the perfect Draining of the Great Level of the Fens, called Bedford Level.*

**I**mprimis, The great Sluce and Sofs at Germans near Magdalen, as they are Designed to be builded with Brick, Stone, Flood-gates, Fall-gates, Sofs-gates, Iron-work, and Workmanship, and allowed by Workmen, will cost —————

lb s. d.  
9833 15 06

The making the River through Marland, from the River called the Horseshooc to Germans-Bride, with Banks and In-drains, at 5<sup>th</sup>. a Pole, will cost —————

12800 00 00

The Purchase of the Land in Marland, where the River, Banks, and In-drains are cut out of, at 15<sup>th</sup>. an Acre for the Purchase, will cost —————

01575 00 00

The Purchase of the Land, with the making of Banks and In-drains of the New Cut, from the River of Owse to the great Sluce, will cost —————

00384 07 06

The making of Sandy's River, from Ely to Littleport Chair, at 1<sup>th</sup>. 15s. 00 a Pole, will cost —————

01680 00 00

The Sluce and Sofs at Guyheirne, allowing the Timbers of the Sluce and Sofs at Saltors Load, there to be delivered, will cost 500<sup>th</sup>. otherwise the Charge of that Sluce and Sofs will be double —————

00500 00 00

The Sluce and Sofs at Ditton by Cambridge, allowing the Timbers of Knowl's Sluce, with the Timbers at the Brick-kills, there to be delivered, will cost 200<sup>th</sup>. otherwise the Charge of that Sluce and Sofs will be double —————

00200 00 00

The taking up the Shelves and Flats in the Rivers of Owse and Grant, will cost —————

00600 00 00

The making of the two Dams, one over the River of Owse by Magdalen, and the other over the River called the Horseshooc below Wisbidge, will cost —————

00600 00 00

The making of the Pic for the great Sluce at Germans, or near Magdalen, may cost —————

00200 00 00

The Tarras to be made use of in and about the great Sluce and Sofs, may cost —————

00200 00 00

The Total —————

28573 03 00

